where:

A_u = Area of the amikacin peak in the chromatogram of the sample (at a retention time equal to that observed for the standard);

A_s = Area of the amikcacin peak in the chromatogram of the amikacin working standard;

P_s = Amikacin activity in the amikacin working standard solution in micrograms per milliliter;

C_u = Milligrams of the sample per milliliter of sample solution; and

m = Percent loss on drying of the sample.

(2) *Loss on drying.* Proceed as directed in § 436.200(c) of this chapter.

(3) *pH.* Proceed as directed in § 436.202 of this chapter, using an aqueous solution containing 10 milligrams per milliliter.

(4) *Identity.* Proceed as directed in § 436.318 of this chapter.

(5) *Residue on ignition.* Proceed as directed in § 436.207(a) of this chapter.

(6) *Specific rotation.* Proceed as directed in § 436.210 of this chapter, using an aqueous solution containing 20 milligrams of amikacin sulfate per milliliter, and a 1.0 decimeter polarimeter tube. Calculate the specific rotation on the anhydrous basis.

(7) *Crystallinity.* Proceed as directed in § 436.203(a) of this chapter.

3. Section 444.206 is amended by revising the last sentence in paragraph (a)(1) to read as follows:

§ 444.206 Amikacin sulfate injection.

(a) *Requirements for certification*—(1) *Standards of identity, strength, quality, and purity.* * * * The amikacin used conforms to the standards prescribed by § 444.6(a)(1) or, if amikacin sulfate is used, to the standards prescribed by § 444.7(a)(1).

* * * * *

Dated: August 29, 1990.

Sammie R. Young,

Acting Director, Office of Compliance, Center for Drug Evaluation and Research.

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DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Part 1910

[Docket No. S-012A]

RIN 1218-AA53

Control of Hazardous Energy Sources (Lockout/Tagout)

AGENCY: Occupational Safety and Health Administration (OSHA), DOL.

ACTION: Final rule; corrections and technical amendments.

SUMMARY: This document amends the final rule on the Control of Hazardous Energy (Lockout/Tagout) (29 CFR 1910.147) which was published on September 1, 1989 (54 FR 36645). This action is necessary to correct typographical errors, include some information inadvertently omitted, and to correct some inconsistencies in the preamble and regulatory text.

EFFECTIVE DATE: September 20, 1990.

FOR FURTHER INFORMATION CONTACT: Mr. James F. Foster, Occupational Safety and Health Administration, room N3649, U.S. Department of Labor, Washington, DC 20210, (202) 523-8148.

SUPPLEMENTARY INFORMATION:

Background

The final standard for the control of hazardous energy (Lockout/Tagout), which was promulgated on September 1, 1989 (54 FR 36644), requires employers to develop an energy control program consisting of the adoption and utilization of written procedures for shutting off and disabling machines and equipment whenever maintenance or servicing are performed on those machines and equipment, the instruction in use of the procedure to employees and the periodic inspection of the use of the procedure. This notice amends the preamble and the standard to correct errors or inconsistencies in those components of the final rule.

Accordingly, the Final Rule document published September 1, 1989 at 54 FR 36644-36696, **Federal Register** Document No. 89-20574, and 29 CFR 1910.147 are corrected as follows:

Preamble

1. Page 36644, column 3, the sentence which begins on line 18 is corrected to read, "The present OSHA regulations for locking out or tagging out machines and equipment, where they do exist, are not uniform in their coverage."

2. On page 36647, column 2, the sentence which begins on line 7 is revised to read, "Practices such as reaching around guards during the cleaning of rollers of printing presses or the feed points or screw conveyors while the equipment is operating, violate the safeguarding requirements set forth in § 1910.212, and therefore, such activities are violations of that rule."

3. On page 36652, column 2, the sentence beginning on line 27 is revised to read, "These activities differ from other activities which are routinely conducted during normal production operations in that they are usually done only on an as-needed basis."

4. On page 36653, column 2, on lines 56 to 58, one of the "a program which incorporates" is deleted.

5. On page 36654, column 1, the sentence which begins on line 45 is revised to read, "The most vigorously contested issue was over the need to use locks or tags as the primary means to prevent operation of energy isolating devices, such as electrical disconnects, hydraulic or pneumatic valves."

6. On page 36655, column 1, the sentence on lines 21-27 is revised to read as follows: "In order to provide adequate protection to employees, the Final Rule requires employers to develop and utilize a comprehensive energy control program consisting of: procedures for shutting down and isolating machines and equipment and locking or tagging out the energy isolating devices; employee training; and periodic inspections of the energy control procedure to maintain its effectiveness."

7. On page 36655, column 1, the parenthetical phrase beginning on line 66 is corrected to read, "except through extraordinary means such as by the use of bolt-cutters".

8. On page 36655, column 2, the citation on line 29 is corrected to read, "(Tr. pg. H194-214, W2-3 to 2-39)."

9. On page 36656, the first sentence on that page should read, "Some equipment would need to be replaced or modified significantly to accept lockable-type energy isolating devices."

10. On page 36656, column 1, the second half of the sentence which begins on line 10 is revised to read, "such efforts are most effectively achieved when done during machine or equipment replacement, major repair, renovation or modification or when new equipment is installed rather than retrofitting existing equipment within a set time frame established in this standard."

11. On page 36656, column 1, a new sentence is added beginning on line 38 to read as follows, "Second, retrofitting of existing equipment may not be technologically or economically feasible."

12. On page 36656, column 1, the sentences beginning on line 59 through the end of the paragraph are revised to read, "For such equipment, OSHA will allow employers to use the tagout program as prescribed by (c)(2)(i), but only until the equipment is replaced, or has major repair, renovation or modification performed on it. At that time, the new, renovated or modified equipment must be equipped with lockable energy isolating devices, and the energy control procedure must be

revised to make use of that capability, except when the employer can demonstrate that the tagout program in use provides full employee protection."

13. On page 36656, column 2, the sentence beginning on line 6 is revised to read as follows: "OSHA is confident that this standard is a cost-effective approach to providing protection against the restarting of machines or equipment and the release of hazardous energy."

14. On page 36656, column 2, the sentence beginning on line 13 is revised to read as follows: "It requires that the employer develop and utilize an energy control program consisting of written procedures, employee training and periodic inspections for servicing and maintenance of machines and equipment, using lockout or its equivalent on the great majority of energy isolating devices, namely those which are capable of being locked out."

15. On page 36656, column 3, lines 4 through 9 are revised to read, "installed within a cabinet, enclosure or cutout box containing several other energy isolating devices or valves and the only means of preventing access to the energy isolating device or valve is to lock the doors of the cabinet, enclosure or box. In this instance,"

16. On page 36656, column 3, the second and third sentences beginning on line 55 are combined to read, "For standards dealing with exposure to toxic substances and harmful physical agents which were promulgated under section 6(b)(5) of the OSH Act, section 8(c)(3) of the Act spells out specific requirements for employee observation of monitoring activities and access to records of monitoring."

17. On page 36657, column 3, the sentence beginning on line 53 is the start of a new paragraph.

18. On page 36658, column 1, the sentence beginning on line 11 is revised to read, "Section 4(b)(1) provides that when another Federal agency exercises statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health, that exercise of authority will preempt OSHA from covering those same working conditions."

19. On page 36658, column 1, the sentence beginning on line 52 is revised to read, "On the other hand, one commenter (Ex. 2-50) spoke out in favor of this OSHA standard applying to piping systems."

20. On page 36659, column 1, the sentence beginning on line 4 is revised to read, "The tag, in this case, supplements the blank flange or blind by identifying the employees performing the maintenance, thereby establishing a method of continuous individual accountability for the employees. An effective system of administrative control, such as the use of a single master tag with provision for individuals to sign in and out as they begin or end their work on the machine or equipment, would satisfy this requirement."

21. On page 36659, column 2, the sentence beginning on line 18 is corrected to read as follows: "The amount of detail in a procedure for shutting down a simple conveyor with a single source of power, and single feed and discharge points, could be much less than the procedure for shutting down a long assembly line conveyor with multiple feed and discharge points and multiple power sources."

22. On page 36659, column 2, the title of the major subdivision of the preamble (line 42) is "Summary and Explanation of the Final Standard".

23. On page 36659, column 3, the sentence beginning on line 23 is revised to read, "This Final Rule does not contain specifications which must be followed in all circumstances, but rather, provides flexibility for each employer to develop an effective program (procedures, training and inspections) which meets the needs of the particular workplace and the particular types of machines and equipment being maintained or serviced."

24. On page 36660, column 1, the sentence beginning on line 6 is replaced with the following: "Since the standard requires that lockout and tagout devices identify the person that affixed (and is to be protected by) the device, the employer must develop and utilize a method to identify the persons that the bolted blinds and blank flanges are intended to protect. The use of individual tags or a group tag which provides for continuous individual accountability would meet this requirement."

25. On page 36661, column 1, the sentence which begins on line 58 is corrected to read, "In the proposed standard, OSHA suggested excluding these operations (paragraph (a)(2)(iii) stated, 'when it is necessary to perform the activity and if the activity is performed using alternative measures which the employer can demonstrate are equally effective')."

26. On page 36661, column 2, the sentence which begins on line 20 is revised to read as follows: "These hazards may be manifested when the employee must either remove or bypass guards or other safety devices which were not designed or intended to be removed, when the employee is required to place any part of his or her body into an unguarded point of operation of the machine or equipment, or when an employee must reach into or enter an associated danger zone when a machine is operating."

27. On page 36661, column 3, the sentence beginning on line 30 is revised to read as follows: "Their reasoning essentially was that if alternative methods are used to keep the employee out of the danger zone or to eliminate the danger zone, there is nothing for the standard to cover, since the employee would not be exposed to a hazard. (Tr. p. H290–291)."

28. On page 36661, column 3, the sentence which begins on line 61 is amended to begin with the word "However," so the sentence reads, "However, minor tool adjustments and changes or other minor servicing activities performed during normal production operations, are not covered by lockout or tagout requirements * * * "

29. On page 36662, column 1, the sentence beginning on line 59 is revised to read as follows: "OSHA emphasizes that this exclusion was intended to cover the types of routine, repetitive, minor servicing and adjustments which are integral to and necessary for the production process."

30. On page 36662, column 2, the sentence beginning on line 9 is replaced with the following four sentences: "An example of the use of an alternative method of safeguarding which takes place during normal production operations and which would not require deenergization and lockout or tagout of an entire system involves the removal of a finished part from an injection molding machine. Once the machine has completed a cycle, opening the interlocked sliding gate guard prevents the machine from beginning another cycle until the operator reposition the guard. Similarly, when the operator stops a machine by using the stop/start controller, the use of interlocked movable guards which prevent activation of the machine while the guard is not in place satisfies this condition, provided that the means of control of the machine remains in the exclusive control of the person afforded the protection. This is necessary to ensure that no other person can restart the machine without the knowledge and consent of the person performing the servicing."

31. The sentence beginning on line 14, column 2 of page 36662 is the beginning of a new paragraph. The new paragraph is revised to read as follows: "It must be emphasized that the exclusion from lockout or tagout does not mean that the employer can avoid providing

protection. As the exclusion itself makes clear, the work must be performed using alternative safeguarding measures which provide effective employee protection. This will generally involve compliance with OSHA's machine guarding standards throughout the production process."

32. On page 36662, column 2, the sentence beginning on line 26 is revised to read as follows: "In evaluating servicing performed during normal production operations, the first question to be asked is whether employees must remove or bypass fixed guards or otherwise expose themselves to the dangers of the unexpected release of hazardous energy."

33. On page 36662, column 2, lines 40 through 60 are revised to read as follows: "However, if the servicing operation is routine, repetitive and must be performed as an integral part of the production process, lockout or tagout may not be necessary, because these procedures would prevent the machine from economically being used in production. OSHA will continue to treat these machine operations as being covered by the general machine guarding requirements of subpart O. The employer must provide appropriate safeguards to protect employees from the hazards of the point of operation and the power transmission apparatus of the equipment when employees are exposed to hazards. The use of protective measures which prevent employee exposure to hazards, such as specially designed servicing tools and remote oilers, could satisfy the requirements of subpart O. Safeguarding for minor servicing during normal production operations also may include, for example, interlocked barrier guards, local disconnects or control switches which are under the exclusive control of the employee performing the minor servicing, provided they enable the employee to perform such minor servicing without being exposed to the unexpected energization or activation of the equipment or the release of stored energy."

34. On page 36663, column 2, the sentence beginning on line 5 to revised to read, "First, process shutdowns and start-ups of equipment of this nature pose extreme hazards of explosion and fire due to the type of materials being handled, and the complexities of and potential interactions between materials being conveyed or otherwise available in the workplace."

35. On page 36664, column 1, the sentence beginning on line 12 is revised to read, "This standard requires the development of a program centered around the use of a standardized, written procedure, the training of employees in their role in the successful use of the procedure, and periodic inspections to maintain the effectiveness of the program."

36. On page 36664, column 1, the sentence beginning on line 28 is revised to read, "In paragraph (a)(3)(ii), OSHA states that the intention of the standard is not to replace existing specific OSHA lockout and/or tagout provisions, but to supplement and support these provisions with requirements for using a written procedure, for training employees and for periodic inspections of the use of that procedure."

37. On page 36664, column 1, on line 46, the last entry under the heading Overhead and Gantry Cranes is corrected to read, "1910.179(l)(2)(i) (A), (B), (C), (D)."

38. On page 36664, column 1, lines 48 and 49, the entries under the heading Derricks are corrected to read:

1910.180(f)(2)(i)(C)
1910.180(f)(2)(i)(D)

39. On page 36664, column 1, line 57, through column 2, line 7, the entries under the heading Forging Machines are revised to read as follows:

1910.218(a)(3)(iii), (iv)
1910.218(d)(2)
1910.218(e)(1)(ii)
1910.218(f)(1)(i), (ii), (iii)
1910.218(f)(2)(i), (ii)
1910.218(h)(2), (5)
1910.218(i)(1), (2)
1910.218(j)(1)

40. On page 36664, column 2, the following entries are added between the end of the Forging Machine entries and the text at line 8:

Welding, Cutting & Brazing

1910.252(c)(1)(i)
1910.252(c)(2)(ii)

Pulp, Paper and Paperboard Mills

1910.261(b)(4)
1910.261(f)(6)(i)
1910.261(g)(15)(i)
1910.261(g)(21)
1910.261(j)(4)(iii)
1910.261(j)(5)(iii)
1910.261(k)(2)(ii)

Textiles

1910.262(c)(1)
1910.262(n)(2)
1910.262(p)(1)
1910.262(q)(2)

Bakery Equipment

1910.263(k)(12)(i)
1910.263(l)(3)(iii)(B)
1910.263(l)(8)(iii)

Sawmills

1910.265(c)(12)(v)
1910.265(c)(13)
1910.265(c)(26)(v)

Grain Handling Facilities

1910.272(e)(1)(ii)
1910.272(g)(1)(ii)
1910.272(l)(4)

41. On page 36664, column 2, the sentence beginning on line 49, the words "it from" are added to the phrase identified as item (1) to read as follows, "(1) To provide equipment with the physical means or capability to isolate it from energy sources during maintenance and repair activities; or"

42. On page 36664, column 3, the sentences beginning on line 11 and ending at line 19 are revised to read, "For the most part, they address the importance of the proper installation of energy controls for particular types of equipment. The types of controls required by this category of current rules will determine how such equipment may be isolated from the energy source under this Final Rule."

43. On page 36664, column 3, the sentences beginning on line 50 are corrected to read, "An example of a provision which specifies the use of locks as a means of controlling the energy is found in § 1910.179(l)(2)(i)(C) which states, 'The main or emergency switch shall be open and locked in the open position.' Provisions of similar content are found in paragraphs: * * *"

44. On page 36665, column 1, lines 1 through 8 are corrected to read, "An example of a provision which specifies the use of locks or tags is found in § 1910.261(j)(4)(iii) which states, 'When cleaning, inspecting, or other work requires that persons enter the beaters, all control devices shall be locked or tagged out, in accordance with paragraph (b)(4) of this section.' Provisions of similar content are found in the following: * * *"

45. On page 36665, column 1, the sentence beginning on line 29 is revised to read, "Provisions of similar content are found in: * * *"

46. On page 36665, column 1, the sentence beginning on line 43 is corrected to read as follows: "This standard supplements the other provisions in much the same way as with the first category in that it requires the establishment of procedures for energy control, the training of employees and periodic inspections of the procedures."

47. On page 36665, column 1, the sentence beginning on line 54 is revised to read as follows: "When current standards require the use of locks and/or tags, those standards are supplemented rather than replaced by the requirements of this standard for the utilization of written procedures,

training of employees and periodic inspections."

48. On page 36665, column 3, the sentences beginning on line 2 through line 35 are corrected to read, "If an employee is performing servicing or maintenance, and therefore must use the energy control procedure, that employee is an "authorized employee". By contrast, an "affected employee" is one who does not perform the servicing or maintenance but whose work duties are performed in an area in which servicing or maintenance is performed. The affected employee needs to know only when the energy control procedure is being used, and to understand the importance of not attempting to start up or to use the equipment which has been locked out or tagged out. The definition of "authorized employee" also states that an affected employee is an authorized employee whenever that person performs servicing or maintenance covered by this standard on a machine or equipment. In this case, that person, as an authorized employee, must have the training and knowledge to perform the servicing or maintenance safely.

49. On page 36665, column 3, the sentence beginning on line 60 is revised to read, "The revised definition assures that when a servicing task is performed by an employee, that employee who is directly exposed to the hazards of the servicing operation will have to affix his/her personal lockout or tagout device before beginning the work and to remove it when he/she completes the work."

50. On page 36666, column 1, the sentence beginning on line 62 is revised to read, " 'Energy' as used in the standard means mechanical motion (kinetic energy—the energy of motion); potential energy due to gravity or springs; electrical energy; thermal energy resulting from high or low temperature; and hydraulic or pneumatic energy."

51. On page 36666, column 2, the sentence beginning on line 9 is revised to read, "1. Mechanical motion (kinetic energy—the energy of motion) may be linear translation, rotation or a combination of the two. This type of energy cannot be turned off or on but may be contained or stopped."

52. On page 36666, column 2, the sentence beginning on line 14 is corrected to read, "2. Potential energy can be due to the position or location of an object above some datum plane or it can be due to the energy stored in springs. Potential energy can be minimized by moving an object to a lower position. The energy of springs can be dissipated or controlled; it cannot be turned off or on."

53. On page 36666, column 2, a fifth numbered item is added between line 35 and line 36 to read as follows: "5. Hydraulic or pneumatic energy is the pressure (either above or below atmospheric) contained in a liquid (such as oil or water) or in a gas (such as air). Hydraulic or pneumatic energy may be turned off. Hydraulic or pneumatic energy also may be stored; in which case, it must be released or dissipated."

54. On page 36666, column 3, the sentences beginning at line 44 through line 69 are revised to read, "This adjustment, which is done as part of the normal operation of the machine, is covered by the machine guarding requirements. Guarding must be provided to keep the employee's body away from the point of operation and other hazardous areas of the machine. However, if it becomes necessary, as a minor routine, repetitive activity which is integral to the production process, to change the speed of the machine by adjusting belt drives or other components which are normally guarded, and effective alternative safeguarding is provided which will protect employees from exposure to the hazards addressed by this standard, then the lockout/tagout requirements of this Final Rule do not apply. If effective alternative safeguarding is not provided, the minor servicing is covered by this standard. Similarly, if it becomes necessary to adjust the movement of a long-bed milling machine worktable and the isolating hydraulic cut-off valve is not in the exclusive control of the person making the adjustment, or this requires the employee to negate the effectiveness of the safeguards so that the employee is exposed to the hazard of unexpected energization of the machine (i.e., there is no alternative protection), this final standard applies. However, if this step is performed without the employee having to remove or bypass any safeguards or otherwise expose his/her body to the potential release of energy or the unexpected activation of the machine, this Final Rule does not apply."

55. On page 36667, column 1, the sentence beginning on line 37 is corrected to read, "Anything that is done to prepare a machine or equipment to perform its normal production operation, such as changing a machine part (e.g., changing the blade of a power saw), is not considered utilization of a machine or equipment and is classified as servicing or maintenance rather than normal production operations."

56. On page 36667, column 1, the sentence on lines 56 through 61 is corrected to read, "The definition of servicing or maintenance includes those activities which require an employee to remove or bypass guards or other safety devices which were not intended to be removed during normal production operations (i.e., resulting in exposure to the hazards addressed by this standard), or to otherwise expose himself/herself to hazardous machine elements.

57. On page 36667, column 2, the sentence beginning on line 30 is revised to read, "The Final Rule requires that authorized, affected and other employees be trained in and understand those things which are necessary for each employee to know in order to have servicing or maintenance performed safely."

58. On page 36667, column 3, the sentence beginning on line 3 is corrected to read, "Methods of evaluating and maintaining the effectiveness of these procedures are provided in two other paragraphs of the standard: paragraph (c)(6), which addresses periodic inspections for observing employee adherence to the procedures; and paragraph (c)(7), which covers initial and follow-up training as required to develop and maintain the knowledge and skills needed by employees for the safe application and removal of energy control devices."

59. On page 36667, column 3, the sentence beginning on line 19 is revised to read, "OSHA makes a distinction between the method of controlling the energy (the type of energy control devices utilized) based primarily upon whether or not the energy isolating device is capable of being locked out."

60. On page 36668, column 3, the sentences beginning on line 68 through line 10 of column 1 of page 36669 are corrected to read, "In lockout, the presence of a servicing employee's lockout device on an energy isolating device will prevent another employee from activating or energizing the equipment, even if that other employee does not understand the restrictions of the energy control program. By contrast, tagout is highly dependent on human factors, and requires constant vigilance to ensure that tagout devices are not removed, bypassed or disregarded."

61. On page 36669, column 1, the sentence beginning on line 14 is revised to read, "Such training, which involves a review of the employee's responsibilities under the energy control program and the limitations of tagout, has been incorporated into the periodic inspection requirements in paragraph (c)(6) of the Final Rule, and, as such, must be provided on at least an annual basis."

62. On page 36669, column 1, the sentence beginning on line 21 is revised to read, "In addition, the standard requires that the employer's energy control procedure incorporate provisions for enforcing compliance with the restrictions and prohibitions of the program."

63. On page 36669, column 1, the paragraph beginning on line 31 is corrected to read, "Paragraph (c)(2)(i) states that tagout may be used when the energy devices are not 'capable of being locked out' as defined in the standard. This paragraph allows the employer to use tagout in this limited circumstance. If the employer wishes to perform modifications of the equipment to accommodate a lockout device, OSHA encourages such modifications, but as noted above, the standard does not require them until replacement or major modifications or repairs of the equipment is undertaken."

64. On page 36669, column 1, the first two sentences of the paragraph beginning on line 44 are corrected to read, "In paragraph (c)(2)(ii), OSHA requires the use of lockout if the energy isolating devices are 'capable of being locked out' unless the employer can demonstrate that the utilization of tagout will provide full employee protection'."

65. On page 36669, column 1, the sentence beginning on line 54 is corrected to read, "In brief, 'full employee protection' in this context means that when equipment is capable of being locked out, the employer must demonstrate that the tagout program provides a level of safety equivalent to that obtained by using a lockout program."

66. On page 36669, column 1, a sentence is added beginning on line 63 to read as follows: "This will provide additional assurance that the energy isolating device will not be accidentally or inadvertently turned on."

67. On page 36669, column 2, the sentence beginning on line 16 is corrected to read, "In order for an employer to demonstrate that a tagout program provides a level of safety equivalent to a lockout program for a piece of equipment which has lockable energy isolating devices, the employer will need to show additional steps which have been taken to enhance the tagout program."

68. On page 36669, column 2, the sentences beginning on line 50 through 56 are corrected to read, "Several parties contended that because of statistical limitations and due to underreporting, the use of accident data to evaluate an energy control program would not give a true picture of the effectiveness of the program. Similarly, discussions with authorized and affected employees could be used only for determining the thoroughness of the training and their knowledge of the energy control program."

69. On page 36670, column 1, a sentence is added following the sentence which ends at line 59 to read, "The procedure must detail that information which the authorized employees must know to accomplish the lockout or tagout."

70. On page 36670, column 1, line 67, insert, "such as" before the word "those".

71. On page 36670, column 2, the sentence beginning on line 9 is revised to read, "For example, if there is a machine with a single energy source that must be serviced or maintained, and the means to shut down and isolate the machine is uncomplicated and apparent, such as first pushing a stop button, then opening an electrical disconnect which is at the machine, and locking out that energy isolating device, the written procedure could be very simple."

72. On page 36671, column 1, the sentence beginning on line 22 is corrected to read, "The amount of detail in an employer's procedure will depend on the complexity of the machine or piece of equipment, and what the servicing employee must know to shut down and isolate the machine or equipment."

73. On page 36671, column 3, the sentence beginning on line 7 is corrected to read, "The purpose of the standard as stated in paragraph (a)(3) is to require employers to establish and utilize a program for disabling machines and equipment during their maintenance or servicing in order to prevent injury to employees."

74. On page 36671, column 3, the sentence beginning on line 63 is revised to read, "For the energy control procedure to be effective, these devices must have a single meaning to employees: "Do not energize or attempt to start or operate a machine or equipment when such a device is affixed to an energy isolating device which controls the energy to that machine or equipment"."

75. On page 36672, column 2, the sentence beginning on line 5 is corrected to read, "This requirement will enable employers and other employees to determine at a glance which authorized employees are performing a given servicing operation."

76. On page 36672, column 3, the sentence beginning on line 48 is corrected to read, "The proposal was intended to require that tags have some type of commonly used message which would serve to prohibit an employee from removing, bypassing or disregarding the tag."

77. On page 36673, column 1, the sentence which begins on line 52 is corrected to read, "Indeed, group meetings can be the most effective way of dealing with this situation, because they reinforce the employees' knowledge of the procedures and their recognition that they need to follow the procedures carefully."

78. On page 36673, column 2, a sentence is added beginning on line 22 to read as follows: "This is done to ensure that the employee performing the inspections knows the procedures and how they are to be utilized, and to be able to recognize any problems with the energy control program."

79. On page 36673, column 2, the sentence beginning on line 51 is corrected to read, "Therefore, OSHA does not believe that a requirement for additional employee involvement in these inspections is necessary under the OSH Act.

80. On page 36673, column 2, the text beginning at line 66 and continuing through line 12 of column 3 is deleted.

81. On page 36673, column 3, the paragraph beginning on line 19 is corrected to read, "In paragraph (c)(7), OSHA specifies that the employer provide effective initial training, as well as retraining as required by changing conditions in the workplace, or when an inspection conducted in accordance with the requirement for (c)(6) reveals the need for retraining. Additionally, this provision requires certification of such training of employees. OSHA considers these requirements to be of critical importance in helping to ensure that the applicable provisions, restrictions and prohibitions of the energy control program are known, understood and strictly adhered to by employees."

82. On page 36673, column 3, the sentence beginning on line 36 is corrected to read, "However, in order to provide adequate information, any training program under this standard will need to cover at least four areas: The employer's energy control program, the elements of the energy control procedures which are relevant to the employee's duties, the restrictions of the program applicable to each employee, and the requirements of this Final Rule."

83. On page 36673, column 3, the sentence beginning on line 63 is revised to read, "Because authorized employees must use the energy control procedures, it is important that they receive training in recognizing and understanding all

potentially hazardous energy that they might be exposed to during their work assignments, and that they also be trained in the use of adequate methods and means for the control of such energy."

84. On page 36674, column 1, the sentence beginning on line 5 is revised to read, "The authorized employees are the ones who must use the energy control procedure to provide for their protection when they are performing the servicing or maintenance of the machines or equipment."

85. On page 36674, column 1, the sentence beginning on line 45 is corrected to read, "Considerable latitude is given to employers in the development and conduct of the required training for authorized, affected and other employees."

86. On page 36674, column 2, the sentence beginning on line 11 is revised to read, "This instruction on the employer's energy control program can be conveyed during new employee orientations, by the use of employee handbooks, or through regularly scheduled safety meetings."

87. On page 36674, column 2, the sentence beginning at line 56 is corrected to read, "In paragraph (c)(7)(iii), OSHA requires that retaining be provided for authorized and affected employees whenever there is a change in their job assignments, a change in the machines or equipment that present a new hazard, or when there is a change in the energy control procedure. This is in addition to the review of the procedure which is part of the annual inspection and is required under paragraphs (c)(6)(i) (C) and (D)."

88. On page 36674, column 3, the last two sentences of the paragraph beginning at line 47 are replaced with the following: "The standard provides for maintaining employee proficiency by requiring that the procedures be reviewed with employees whenever a periodic inspection is conducted. This review is with authorized employees when lockout is in use and with authorized and affected employees when tagout is in use. The retraining requirements of (c)(7)(iii) apply when employees receive new job assignments for which they were not previously trained in lockout/tagout requirements, when a change in machines, equipment or processes presents a new hazard or when there is a change in the energy control procedures. Additionally, retraining is required whenever a periodic inspection reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in the knowledge of use of the energy control procedures."

89. On page 36674, column 3, the paragraph which begins at line 57 is replaced with the following: "Retraining must be conducted to reestablish employee proficiency. The scope and content of all the formal retraining must be based upon the severity of the problems encountered with the use of the energy control program and must be directed toward elimination of those problems."

90. On page 36675, column 1, the sentence beginning on line 30 is corrected to read, "Such inadequacies in the procedure could be the result of using a general procedure that does not handle effectively a specific application, or they may arise because changes have been made to the equipment or process that the existing energy control procedure did not take into consideration."

91. On page 36675, column 1, line 46, the words "annual retraining requirement" are changed to "requirement for an annual review of the procedure during the periodic inspection".

92. On page 36675, column 1, line 58, the words "annual retraining" are changed to "an annual review of the procedure".

93. On page 36675, second column, line 16, the paragraph reference (c)(7)(iv) is changed to (c)(6)(i)(D) and lines 18–20 are corrected to read as follows: "and affected employees must review the use of the tagout system as part of the annual inspection. This additional review".

94. On page 36675, second column, line 42, the word "retraining" is changed to "review of the procedure".

95. On page 36676, column 1, the sentence beginning on line 17 is revised to read, "Authorized employees are required at (c)(7)(i)(A) to receive training in and to know that information relating to hazardous energy."

96. On page 36676, column 2, the sentence beginning on line 15 is revised to read, "The new paragraph (c)(8) requires that lockout or tagout be performed only by the authorized employees who are performing the maintenance or servicing."

97. On page 36676, column 2, the sentence beginning on line 29 is corrected to read, "In paragraph (c)(9), OSHA requires that whenever servicing or maintenance might affect other employees' work activities, the employer or the authorized employee must tell those employees before applying lockout or tagout devices and after they are removed that servicing or maintenance is going to be done or has been completed on a machine or equipment."

98. On page 36676, the sentence which begins on line 37 of the third column is corrected to read, "The main thrust of the standard is to mandate the development, documentation and utilization of procedures, the training of employees in their responsibilities under the energy control program and periodic inspections to ensure the continued effectiveness of the energy control program."

99. On page 36676, column 3, the sentence which begins on line 67 is corrected to read, "Paragraph (d) of the Final Rule provides that six separate and distinct steps be followed in stopping, deenergizing and locking out or tagging machines or equipment, and that the actions be taken in the sequence presented."

100. On page 36677, column 1, the sentence beginning on line 13 is revised to read, "Paragraph (d)(2) then requires that the machine or equipment be turned off or shut down according to the procedure normally employed for stopping the machine or equipment." This will be done by the authorized employee or the affected employee (the machine or equipment operator or user).

101. On page 36677, column 1, the sentence beginning on line 27 is corrected to read, "In other cases, however, such as those found in a refining or chemical process, there are many control devices that must be closed, shut down or stopped in a particular sequence."

102. On page 36677, column 2, the sentence beginning on line 63 is revised to read, "Instead of adding individual restrictions to each of the procedural steps of the standard, OSHA has added a new paragraph (c)(8) to the final standard which requires that all steps of the procedure except initial shutdown of the equipment as provided in paragraph (d)(1) be performed only by the authorized employee(s) who are performing the servicing or maintenance."

103. On page 36677, column 3, the sentence which begins on line 3 is revised to read, "Since the use of lockout or tagout is presumed by OSHA to be individual protection, identification and operation of the energy isolating devices are done by the authorized employees who are applying the locks or tags under the procedures and who are performing the servicing or maintenance."

104. On page 36678, column 1, the sentence beginning on line 20 is revised to read, "For this type of machinery, the cam or concentric dictates the motion of the machinery component. Stoppage of the machine with the cam or concentric

follower in or near a peak position can cause the machinery elements to move if the cam or concentric is set in motion by inadvertent employee contact."

105. On page 36678, column 2, the sentence beginning on line 42 is corrected to read, "Verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of reaccumulation of stored energy no longer exists."

106. On page 36678, column 3, the first three sentences of the paragraph beginning at line 28 is revised to read, "This step of the procedure may involve a deliberate attempt to start the equipment which has been isolated from the energy. It is an action intended to assure the employee that the machine or equipment is isolated from the energy, that residual or stored energy has been dissipated or blocked and that injury could not result from the inadvertent activation of the operating controls. Another means of verifying is testing the machine or equipment with the appropriate test instruments."

107. On page 36679, column 1, the sentence which begins on line 19 is revised to read, "These actions are intended to ensure that: (1) The machine or equipment has been returned to a safe operating condition; (2) any employees who might be exposed to injury due to the starting of the machine or equipment know that the machine or equipment is being energized; and (3) those employees who applied the energy control devices are available to remove those devices."

108. On page 36679, column 1, the sentence beginning on line 50 is revised to read, "Paragraph (e)(2) then requires a check to ensure that employees are safely positioned and have been notified that the machine or equipment is to be reenergized."

109. On page 36679, column 1, a sentence is added at the end of line 61 to read, "Affected employees may be notified of the impending start up of the machine or equipment by the use of warning bells or lights provided these employees know what that signal indicates."

110. On page 36679, column 2, the sentence which begins on line 26 is revised to read, "Depending on the size or complexity of the machine and the type and degree of the servicing performed, visual inspection alone might be sufficient to meet this requirement; however, additional measures, such as checklists and other administrative procedures might have to be utilized for large, complex machines or equipment."

111. On page 36679, column 2, the sentence beginning on line 42 is revised to read "OSHA believes that the cleanup requirement must of necessity be a broad one, since virtually any extraneous item in the servicing area can potentially cause injury to employees if the machine or equipment were to be reenergized or started up before such items are removed."

112. On page 36679, column 2, the sentence which begins on line 64 is revised to read, "This determination usually can be accomplished by a visual inspection, however, depending on the size and/or complexity of the equipment and the scope of the operation, may necessitate the use of warning devices such as horns, bells or buzzers."

113. On page 36679, column 3, the sentence which begins on line 22 is revised to read, "The employer is in the best position to evaluate the equipment in the workplace, and to make a determination of the areas where employees may be exposed to the hazards of the machine or equipment unexpectedly becoming energized or starting up."

114. On page 36679, column 3, the text beginning at line 34 and ending at line 43 is revised to read, "Lockout or tagout is personal protection. For this reason, OSHA requires in paragraph (e)(3) that lockout or tagout devices be removed by the employees who applied them except in limited situations. In the proposed standard, OSHA considered whether an exception should be provided whenever two conditions exist which would necessitate the removal of a lockout or tagout device by an authorized employee other than the employee who applied the device."

115. On page 36680, column 3, the sentence beginning on line 12 is revised to read, "This exception provides for a temporary measure to be used only to accomplish a particular task for which reenergization is essential."

116. On page 36680, column 3, the paragraph beginning at line 16 is revised to read, "In paragraphs (f)(2) (i) and (ii), the final standard requires that whenever outside servicing personnel are engaged to perform any of the activities covered by this standard, each employer must inform the other employer of their respective lockout or tagout procedures. Each employer shall ensure that his/her employees understand and comply with the restrictions and prohibitions of the other employer's energy control program."

117. On page 36681, column 1, the sentence which begins at line 4 is corrected to read, "OSHA sees the proper utilitization of these provisions, when they are understood and adhered to, as a way to prevent misunderstandings by either plant employees or outside service personnel regarding the use of lockout or tagout procedures in general, the use of specific lockout or tagout devices that are selected for a particular application, and the restrictions and prohibitions imposed upon each group of employees by the other employer's energy control program."

118. On page 36681, column 1, the paragraph beginning on line 31 is revised to read, "The standard requires that each employer inform the other employer of the procedures used by his/her employees and that each employer's employees understand and comply with the restrictions and prohibitions of the other employer's energy control program. For example, if there are elements of the contractor's procedures which need to be explained to the facility employees, or if there are other steps needed to assure the safety of the contractor's employees, the facility employer must provide his/her employees with the information to provide the necessary protection."

119. On page 36681, column 1, the sentence beginning at line 60 is revised to read, "However, OSHA believes that if each employer provides the necessary information on his/her energy control procedures to the other employer, both employers will be able to evaluate the different procedure and determine what information needs to be provided to their respective employees."

120. On page 36681, column 2, the sentence which begins on line 1 is revised to read, "Accordingly, paragraph (f)(2) of the Final Rule requires that the contracting and contractor employers inform each other about the lockout or tagout procedures each uses; and that the employees of each employer understand and comply with the restrictions and prohibitions of the other employer's energy control program."

121. On page 36681, column 3, the remainder of the paragraph beginning at line 23 is revised to read, "This is necessary for several reasons: first, the placement of a personal lockout or tagout device enables that employee to control his/her own protection, rather than having to depend upon another person; second, the use of a personal lockout or tagout device will enable each servicing employee to verify that the equipment has been properly deenergized in accordance with the energy control procedure, and to affix his/her device to indicate that verification; third, the presence of an employee's lockout or tagout device will inform all other persons that the employee is working on the equipment; fourth, as long as that device remains attached, all employees know that the

job is not completed and that it is not safe to reenergize the equipment; and fifth, the servicing employee will continue to be protected by the presence of his/her device until he/she removes it. The authorized employee in charge of the group lockout or tagout cannot reenergize the equipment until each employee in the group has removed his/her personal device, indicating that he/she is no longer exposed to the hazards from reenergization of the machine or equipment. OSHA is convinced that the use of individual lockout or tagout devices as part of the group lockout provides the greatest assurance of protection for servicing employees."

122. On page 36682, column 1, the sentence beginning at line 17 is revised to read, "As in the case of personal lockout or tagout, the employer who uses group lockout or tagout must develop a procedure which encompasses the elements set forth in paragraph (c)(4)."

123. On page 36682, column 1, the sentence which begins on line 23 is corrected to read, "Paragraph (f)(3) contains several key provisions which must be included in all group lockout or tagout procedures."

124. On page 36682, column 1, the sentence beginning at line 52 is revised to read, "This method provides individual protection for all employees working under the protection of a particular lockout or tagout device."

125. On page 36682, column 2, the sentence which begins at line 31 is revised to read, "For that reason, it involves a closer examination of the conditions, methods and procedures needed for effective individual employee protection."

126. On page 36682, column 3, two sentences are added beginning at line 35 to read as follows: "When complex equipment is being serviced, OSHA recognizes the need to provide employers with the option of utilizing an alternative procedure to each employee locking or tagging out each energy isolating device. When an alternative procedure is used, it must provide equivalent protection for the authorized employees."

127. On page 36682, column 3, the sentence beginning at line 45 is revised to read, "As with group lockout or tagout, the method of accomplishing this task must be part of the procedures that are defined in performance language in paragraph (c)(4)."

128. On page 36683, column 1, the sentence which begins on line 5 is revised to read, "This assurance may involve action by the authorized supervisory employee responsible for the transfer to verify the continued isolation of the machine or equipment from the energy source."

129. On page 36683, column 2, the two sentences which begin on line 21 are revised to read, "In the case of the type of complex servicing operation described by EEI and others (Ex. 2–33, 2–36, 2–39, 2–46 and 2–69) involving large numbers of energy isolating devices, large numbers of servicing employees, and multiple shifts, OSHA acknowledges that the removal and replacement of the lockout/tagout devices each shift could be overly burdensome. In these situations, when the complexity of the servicing operation necessitates an alternative to such frequent attachment and removal of lockout or tagout devices, the use of the work permit or comparable means, with each employee signing in and out as he or she begins or stops working on the equipment, combined with the servicing employees verifying that the equipment is deenergized prior to beginning work, would be an acceptable approach to compliance with group lockout/tagout and shift change provisions of the standard."

130. In addition to the revisions and corrections stated above, there are additional minor corrections made in the preamble, which are identified below:

FR page	Column	Line	Correction
36644	3	42	Change "limited" to "partial".
36644	3	43	Change "upon" to "by".
36645	2	7	Change "consideration" to "account".
36646	1	7	Change "request" to "requests".
36647	1	24	Change "which" to "when".
36650	3	44	Change "issued" to "is used".
36650	3	45	Change "means" to "device".
36651	1	22	Delete the word "additional".
36651	1	23	Delete the word "jointly".
36651	2	30	Change "which" to "which".
36655	1	48	Change "mechanisms" to "devices".
36655	2	50	Delete "various types of".
36655	3	55	Change "facilitating" to "enabling".
36655	3	66	Delete the word "also".
36657	2	2	Change "earth moving" to "earthmoving".
36657	2	5	Change "machine" to "Vehicle".
36657	3	41	Delete "in which".
36658	1	24	Change "determination" to "basis".
36659	2	66	Change "fuse" to "use".
36659	3	14	Change "defines" to "describes".
36659	3	32	Change "suggest" to "suggested".
36660	2	10	Change "with" to "by".
36660	3	45	Change "then" to "them".
36660	3	54	Change "the machines" to "it".
36661	3	53	Delete "alternative".
36662	1	3	Delete "will".
36662	1	47	Change "must" to "need not".
36662	3	30	Change "procedures" to "measures".
36662	3	52	Delete "hand".
36664	1	27	Delete "(d)(5)" to "(d)(6)".
36664	2	17	Change "measures" to "devices".
36664	2	45	Change "6(a)" to "general industry".
36664	3	11	Change "design" to "installation".
36664	3	57	Change "1910.181(f)(2)(i)(c)" to "1910.181(f)(2)(i)(C)".
36664	3	63	Change "1910.263(1)(3)(iii)(b)" to "1910.263(1)(3)(iii)(B)".
36665	1	54	Delete "sources".

FR page	Column	Line	Correction
36665	3	56	Change "(d)(3)" to "(d)(4)".
36666	2	37	Change "noted" to "stated".
36666	2	64	Change "subpart" to "Subpart".
36666	2	65	Change "part" to "Part".
36666	3	42	Change "must" to "may have to".
36667	1	35	Change "the" to "that".
36667	2	44	Change "(c)(7)(v)" to "(d)(1)".
36667	3	37	Change "an" to "the".
36667	3	56	Change "has been" to "was".
36668	1	2	Change "must" to "should".
36668	1	54	Delete "either lockout or".
36668	2	5	Delete "lockout or".
36668	2	15	Delete the hyphen.
36668	3	12	Change "a tagout procedure" to "tagout".
36668	3	16	Change "tagout devices" to "tagout".
36670	2	39	Change "projections" to "protection".
36670	3	56	Change "companies" to "operations".
36671	1	35	Change "(c)(7)(vi)" to "(d)(1)'.
36672	1	19	Change "is requiring" to "requires".
36672	1	56	Change "item (d)" to "paragraph (c)(5)(ii)(D)".
36673	1	2	Change "system" to "procedure".
36673	1	5	Change "program" to "procedure".
36674	2	61	Change "and" to "an".
36675	2	45	Change "(c)(7)(v)" to "(c)(7)(iv)".
36676	1	22	Delete "For example".
36676	1	62	Change "(c)(7)(vi)" to "(d)(1)'.
36676	3	66	Change "(a)(3)(iii)" to "(a)(3)(ii)".
36678	1	66	Change "(d)(4)" to "(d)(5)".
36678	2	46	Delete "stored".
36679	2	40	Change "machines" to "items".
36679	3	61	Change "that where" to "when".
36680	1	30	Delete "such".
36680	1	61	Change "attached" to "in use".
36680	2	44	Change "required" to "necessary".
36680	3	57	Change "own employer" to "fellow employees".
36681	2	26	Change "must" to "will need to".
36681	3	25	Change "personnal" to "personal".
36682	1	39	Change "lockout" to "lockbox".
36683	1	37	Change "control means" to "isolating devices".
36683	2	6	Change "machinery" to "machine".

Regulatory Text

The following technical amendments are made to correct 29 CFR 1910.147, which was issued on September 1, 1989. The original effective date of § 1910.147, October 31, 1989, was extended to January 2, 1989, by notice published on November 6, 1989 (54 FR 46610).

PART 1910—[AMENDED]

§ 1910.147 [Amended]

131. The definition of Authorized employee in paragraph (b) of § 1910.147 is revised to read as follows:

(b) * * *

Authorized employee. A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

* * * * *

§ 1910.147 [Amended]

132. The definition of capable of being locked out in paragraph (b) of § 1910.147 is revised to read:

(b) * * *

Capable of being locked out. An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability."

* * * * *

§ 1910.147 [Amended]

133. The definition of Energy Isolating Device in paragraph (b) of § 1910.147 is revised to read:

(b) * * *

"*Energy isolating device.* A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

* * * * *

§ 1910.147 [Amended]

134. The definition of Lockout Device in paragraph (b) of § 1910.147 is revised to read as follows:

(b) * * *

"*Lockout device.* A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds."

* * * * *

§ 1910.147 [Amended]

135. Paragraphs (c)(1), (c)(2)(iii), (c)(6)(i)(B), (c)(7)(i), (c)(8), (d) introductory text, (d)(2), (e)(2)(ii), (f)(2)(ii) and (f)(4) of § 1910.147 are revised to read as follows:

(c) *General*—(1) *Energy control program.* The employer shall establish a program consisting of energy control procedures, employee training and

periodic inspections to ensure that before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, start up or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source, and rendered inoperative."

* * * * *

(2) *Lockout/Tagout.* * * *

(iii) After January 2, 1990, whenever replacement or major repair, renovation or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machine or equipment shall be designed to accept a lockout device."

* * * * *

(6) *Periodic inspection.* (i) * * *

(B) The periodic inspection shall be conducted to correct any deviations or inadequacies identified."

* * * * *

(7) *Training and communication.* (i) The employer shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training shall include the following:

* * * * *

(8) *Energy isolation.* Lockout or tagout shall be performed only by the authorized employees who are performing the servicing or maintenance.

* * * * *

(d) *Application of control.* The established procedures for the application of energy control (the lockout or tagout procedures) shall cover the following elements and actions and shall be done in the following sequence: * * *

(2) *Machine or equipment shutdown.* The machine or equipment shall be turned off or shut down using the procedures established for the machine or equipment. An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.

* * * * *

(e) *Release from lockout or tagout.* * * *

(2) *Employees.* * * *

(iii) After lockout or tagout devices have been removed and before a machine or equipment is started, affected employees shall be notified that the lockout or tagout device(s) have been removed.

* * * * *

(f) *Additional requirements.* * * *

(2) *Outside personnel.* * * *

(ii) The on-site employer shall ensure that his/her employees understand and comply with the restrictions and prohibitions of the outside employer's energy control program.

* * * * *

(4) *Shift or personnel changes.* Specific procedures shall be utilized during shift or personnel changes to ensure the continuity of lockout or tagout protection, including provision for the orderly transfer of lockout or tagout device protection between off-going and oncoming employees, to minimize exposure to hazards from the unexpected energization or start-up of the machine or equipment, or the release of stored energy.

136. Appendix A to § 1910.147 is revised to read as follows:

Appendix A—Typical Minimal Lockout Procedure

General

The following simple lockout procedure is provided to assist employers in developing their procedures so they meet the requirements of this standard. When the energy isolating devices are not lockable, tagout may be used, provided the employer complies with the provisions of the standard which require additional training and more rigorous periodic inspections. When tagout is used and the energy isolating devices are lockable, the employer must provide full employee protection (*see* paragraph (c)(3)) and additional training and more rigorous periodic inspections are required. For more complex systems, more comprehensive procedures may need to be developed, documented and utilized.

Lockout Procedure

Lockout procedure for

(Name of Company for single procedure or identification of equipment if multiple procedures are used)

Purpose

This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.

Compliance With This Program

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized employees are required to perform the lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance shall not attempt to start, energize or use that machine or equipment.

Type of compliance enforcement to be taken for violation of the above.

Sequence of Lockout

(1) Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

Name(s)/Job Title(s) of affected employees and how to notify.

(2) The authorized employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.

Type(s) and magnitude(s) of energy, its hazards and the methods to control the energy.

(3) If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open switch, close valve, etc.).

Type(s) and location(s) of machine or equipment operating controls.

(4) De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).

Type(s) and location(s) of energy isolating devices.

(5) Lock out the energy isolating device(s) with assigned individual lock(s).

(6) Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, *etc.*) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

Type(s) of stored energy—methods to dissipate or restrain.

(7) Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

Caution: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

Method of verifying the isolation of the equipment.

(8) The machine or equipment is now locked out.

Restoring Equipment to Service. When the servicing or maintenance is completed and the machine or equipment is ready to return

to normal operating condition, the following steps shall be taken.

(1) Check the machine or equipment and the immediate area around the machine or equipment to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.

(2) Check the work area to ensure that all employees have been safely positioned or removed from the area.

(3) Verify that the controls are in neutral.

(4) Remove the lockout devices and reenergize the machine or equipment.

Note: The removal of some forms of blocking may require reenergization of the machine before safe removal.

(5) Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

Signed at Washington, DC, this 13th day of September 1990.

Gerard F. Scannell,

Assistant Secretary of Labor.

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BILLING CODE 4510-26-M

DEPARTMENT OF DEFENSE

Department of the Navy

32 CFR Part 706

Certifications and Exemptions Under the International Regulations for Preventing Collisions at Sea, 1972; Amdt.

AGENCY: Department of the Navy, DOD.

ACTION: Final rule.

SUMMARY: The Department of the Navy is amending its certifications and exemptions under the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS), to reflect determination by the Acting Judge Advocate General of the Navy that USS ARLEIGH BURKE (DDG 51) is a vessel of the Navy which, due to its special construction and purpose, cannot comply fully with certain provisions of the 72 COLREGS without interfering with its special function as a naval destroyer. The intended effect of this rule is to warn mariners in waters where 72 COLREGS apply.

EFFECTIVE DATE: September 11, 1990.

FOR FURTHER INFORMATION CONTACT: Captain R.R. Rossi, JAGC, U.S. Navy, Admiralty Counsel, Office of the Judge Advocate General, Navy Department, 200 Stovall Street, Alexandria, VA 22332-2400, Telephone number: (202) 325-9744.

SUPPLEMENTARY INFORMATION: Pursuant to the authority granted in 33 U.S.C. 1605, the Department of the Navy amends 32 CFR part 706. This amendment provides notice that the Acting Judge Advocate General of the Navy, under authority delegated by the Secretary of the Navy, has certified that USS ARLEIGH BURKE (DDG 51) is a vessel of the Navy which, due to its special construction and purpose, cannot comply fully with 72 COLREGS, Annex 1, section 3(a) pertaining to the location of the forward masthead light in the forward quarter of the vessel, the placement of the after masthead light, and the horizontal distance between the forward and after masthead lights; Annex I, section 2(f)(i) pertaining to placement of the masthead light or lights above and clear of all other lights and obstructions; and, Annex I, section 3(c) pertaining to placement of task lights not less than 2 meters from the fore and aft centerline of the ship in the athwartship direction; without interfering with its special function as a Navy ship. The Acting Judge Advocate General of the Navy has also certified that the lights involved are located in closest possible compliance with the applicable 72 COLREGS requirements.

Moreover, it has been determined, in accordance with 32 CFR parts 296 and 701, that publication of this amendment for public comment prior to adoption is impracticable, unnecessary, and contrary to public interest since it is based on technical findings that the placement of lights on this vessel in a manner differently from that prescribed herein will adversely affect the ship's ability to perform its military functions.

List of Subjects in 32 CFR Part 706

Marine safety, navigation (water), and vessels.

PART 706—[AMENDED]

Accordingly, 32 CFR part 706 is amended as follows:

1. The authority citation for 32 CFR part 706 continues to read:

Authority: 33 U.S.C. 1605.

§ 706.2 [Amended]

2. Table Four of § 706.2 is amended by adding the following paragraphs:

15. Task (restricted maneuverability) lights on the following ships do not comply with Annex I, section 3(c).

Vessel	No.	Horizontal distance from the fore and aft centerline of the vessel in the athwartship direction
USS ARLEIGH BURKE	DDG 51	1.85 meters.

16. On the following ships, the arc of visibility of the forward masthead light, required by rule 21(a), may be obstructed at the following angles relative to ship's heading:

Vessel	No.	Obstruction angle relative ship's headings
USS Arleigh Burke	DDG 51	69.25° thru 106.67°

§ 706.2 [Amended]

3. Table Five of § 706.2 is amended by adding the following vessel:

Vessel	No.	Masthead lights not over all other lights and obstructions. Annex I, sec. 2(f)	Forward masthead light not in forward quarter of ship. Annex I, sec. 3(a)	After masthead light less than 1/2 ship's length aft of forward masthead light. Annex I. sec. 3(a)	Percentage horizontal separation attained.
USS Arleigh Burke	DDG 51	X	X	X	13